AMENDMENTS TO THE SPECIFICATION

Please replace the subheading with beginning at page 1, line 3, with the following rewritten subheading:

BACKGROUND OF THE INVENTION ~~Field of the invention~~

Please amend the subheading beginning at page 1, line 16 as follows:

[Prior art and problems] ~~Prior art~~

Please replace the subheading beginning at page 4, line 16, with the following rewritten subheading:

BRIEF DESCRIPTION OF DRAWINGS ~~Short description of drawings~~

Please replace the subheading beginning at page 4, line 22, with the following rewritten subheading:

DETAILED DESCRIPTION OF THE INVENTION ~~Detailed description of exemplary embodiments~~

Please replace the subheading with beginning at page 9, line 1, with the following rewritten subheading:

WHAT IS CLAIMED: ~~Claims~~

Please replace the paragraph at page 1 line 4 with the following amended paragraph:

The present invention relates to a method for decoding a convolutionally coded input data signal y comprising multiplying the input data signal with a scaling factor L_c, demultiplexing the multiplied input data signal $L_c y$ into three signals which are related to systematic bits and parity bits, a demultiplexed input data signal $L_c S$ being associated with the systematic bits, e.g. in parity signals and a systematic signal and turbo decoding the demultiplexed input data signal $L_c S$ in order to obtain turbo decoded ~~decoder~~ output ~~likelihood ratio data~~ Λ. In a further aspect, the present invention relates

to a decoder device for decoding a convolutionally coded input data signal y comprising a multiplication element for multiplying a received input data signal y with a scaling factor L, a demultiplexer for demultiplexing the multiplied input data signal ly, e.g. in parity signals and a systematic signal, and a turbo decoder for decoding the demultiplexed input data signal IS in order to obtain decoder output likelihood ratio data.

Please insert the following new paragraph at page 1, line 17:

Such a method of decoding data and a decoder device are known from American patent US-B-6,574,291, which discloses a turbo-code decoder with iterative channel parameter estimation.

Please replace the paragraph at page 1, line 17 with the following amended paragraph:

~~Such a method of decoding data and a decoder device are known from~~ American patent publication US-B-6,393,076 ~~which~~ describes a method for decoding turbo codes using data scaling. Convolutionally coded input data is decoded in a near ideal manner. A portion of the input data is buffered, after which a mean of the data in the portion of the input data is calculated. Then a root-mean-square value of the portion is calculated using the mean. A scaling factor is derived from the root-mean square value, which scaling factor is used to scale the portion of the input data before the turbo decoding step.

Please replace the paragraph at page 1, line 25 with the following amended paragraph:

These ~~this~~ disclosed methods ~~method~~ have ~~has~~ the disadvantage that the scaling factor computation is not based on a-posteriori likelihood information, which leads to additional loss. Especially in mobile applications using these kind of coding, every additional loss has a negative effect on system performance.

Please insert the following new paragraphs at page 2, line 4:

The article by M.S. Valenti et al. 'Iterative channel estimation and decoding of pilot symbol assisted turbo codes over flat-fading channels', IEEE Journal on selected areas in communications, Sept. 2001, IEEE, USA, vol. 10, no. 9 pages 1697-1705

discloses a method for coherently detecting and decoding turbo-coded binary shift keying signals transmitted over frequency flat fading channels. The use of hard-decision feedback and soft-decision feedback are considered.

The British patent application GB-A-2 360 425 discloses a channel state information estimation for turbo-code decoders. In this document, only the use ofa maximum a posteriori (MAP) probability decoding algorithm is disclosed.

Please replace the paragraph at page 2, line 9 with the following amended paragraph:

According to the present invention, a method ~~according to the preamble defined above~~ is provided, in which the scaling factor L is updated for a next iteration in dependence on a combination of a posteriori likelihood data based on turbo decoded output data A and a priori likelihood data based on the demultiplexed signal LS. By combining these a posteriori and a priori likelihood data, it is possible to improve the performance of the decoding method without the need of much additional hardware or software resources.

Please replace the paragraph at page 3, line 10 with the following amended paragraph:

In a further embodiment, the scaling factor L_c is initialized either as a fixed value, as the result of an initial number of iterations using a known algorithm, as the result of filtering over subsequent iterations and coding blocks, or as the result of SNR/SIR estimation ~~at~~ of the input data signal. Initialization can thus be accomplished using very simple solutions or more complex but well known solutions.